

BROCK, Ansgar *et. al.*
Appl. No. 09/765,207
Page 2

29. (New) A method of depositing a liquid droplet, the method comprising:
providing a sample plate at a distance from a liquid droplet; and
generating an electric field between the liquid droplet and the sample plate
to polarize the liquid droplet, wherein the liquid droplet is either charged or grounded;
wherein the liquid droplet is pulled to the sample plate along the electric
field.

30. (New) The method of claim 29, wherein providing a sample plate
comprises moving the sample plate to a target position.

31. (New) The method of claim 29, wherein the liquid droplet is pulled to a
target location on the sample plate.

32. (New) The method of claim 29, wherein generating an electric field
comprises applying a charge to the liquid droplet.

33. (New) The method of claim 32, wherein generating an electric field
comprises connecting the sample plate to ground.

34. (New) The method of claim 33, wherein the sample plate is connected to
ground indirectly via an electrode plate that underlies the sample plate.

35. (New) The method of claim 29, wherein generating an electric field
includes applying a charge to the sample plate.

36. (New) The method of claim 35, wherein the charge is applied to the sample
plate indirectly via an electrode plate that underlies the sample plate.

37. (New) The method of claim 35, wherein generating an electric field
comprises connecting the liquid droplet to ground.

38. (New) The method of claim 29, wherein generating an electric field
includes applying a charge to more auxiliary electrodes.

BROCK, Ansgar *et. al.*
Appl. No. 09/765,207
Page 3

39. (New) The method of claim 29, wherein the distance between the liquid droplet and the sample plate is less than ten millimeters.
40. (New) The method of claim 39, wherein the distance between the liquid droplet and the sample plate is approximately five millimeters.
41. (New) The method of claim 29, wherein the electric field has a duration of 100-300 milliseconds.
42. (New) The method of claim 41, wherein the electric field has a duration of approximately 200 milliseconds.
43. (New) The method of claim 29, wherein the electric field has a potential difference of 500-3000 volts.
44. (New) The method of claim 43, wherein the potential difference is approximately 1000 volts.
45. (New) The method of claim 29, wherein two or more drops are deposited at each target location on the sample plate.
46. (New) The method of claim 29, wherein the liquid droplet is provided at a tip of a capillary.
47. (New) The method of claim 46, wherein the capillary is connected to a column.
48. (New) The method of claim 29, wherein the liquid droplet comprises sample molecules.
49. (New) The method of claim 29, wherein the liquid droplet comprises matrix molecules suitable for MALDI.

BROCK, Ansgar *et. al.*
Appl. No. 09/765,207
Page 4

50. (New) The method of claim 29, wherein the liquid droplet comprises a mixture of sample molecules and matrix molecules.

51. (New) A liquid droplet deposition system, comprising:
a holding mechanism;
a plurality of capillaries, held by the holding mechanism;
a sample plate holder positioned beneath the plurality of capillaries; and
a power supply configured to generate an electric field between each capillary and the sample plate, wherein a droplet of liquid which can form at an end of the capillary is pulled to the sample plate along the sample plate.

52. (New) The liquid droplet deposition system of claim 51, wherein each capillary comprises:
a holding column for containing a liquid from which the liquid droplet is formed; and
a capillary tip, connected at a first end to the holding column, and including an open tip at a second end for providing the droplets.

53. (New) The liquid droplet deposition system of claim 51, wherein the sample plate holder is movable.

54. (New) The liquid droplet deposition system of claim 51, further comprising a motion table upon which is situated one or more sample plate holders.

55. (New) The liquid droplet deposition system of claim 51, further comprising means for moving the sample plate to a target position.

56. (New) The liquid droplet deposition system of claim 51, wherein the power supply includes a voltage source for applying a charge to the sample plate.

57. (New) The liquid droplet deposition system of claim 56, wherein system comprises an electrode plate through which the charge is applied indirectly to the sample plate.

BROCK, Ansgar *et. al.*
Appl. No. 09/765,207
Page 5

58. (New) The liquid droplet deposition system of claim 56, wherein the system comprises an electrical connection which grounds a liquid droplet at an end of the capillary.
59. (New) The liquid droplet deposition system of claim 51, wherein the power supply permits the independent application of a charge to each of a plurality of liquid droplets.
60. (New) The liquid droplet deposition system of claim 51, wherein the power supply permits the independent application of a charge to different parts of the sample plate.
61. (New) The liquid droplet deposition system of claim 51, wherein the power supply further includes a ground connection for grounding the liquid droplet.
62. (New) The liquid droplet deposition system of claim 51, wherein the power supply includes a voltage source for applying a charge to the liquid droplet.
63. (New) The liquid droplet deposition system of claim 51, further comprising a controller.
64. (New) The liquid droplet deposition system of claim 51, wherein the capillary is connected to a liquid chromatography column.
65. (New) A liquid droplet deposition method, comprising:
providing a plurality of liquid droplets above a positionable sample plate;
and
attracting each droplet to a target location on the sample plate with an electric field formed between the plurality of droplets and the sample plate.
66. (New) The method of claim 65, wherein the plurality of liquid droplet droplets includes eight or more droplets.
67. (New) The method of claim 65, wherein attracting each droplet to a target location is performed in a succession to a single target location.